



Section 5: Health and Medical Sciences 2008-2009

- ❑ Course Descriptions
- ❑ Course Sequences
- ❑ Career Clusters

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Section 5: Health and Medical Sciences

Course Descriptions, Sequences, Certifications, Career Clusters

Section Overview

This section presents course information applicable to the Health and Medical Sciences program area: course descriptions, course concentration sequences, and career clusters. Following the course description, the remainder of the information for each course is presented in a table. The definitions and criteria below are summarized to clarify and enhance the table components.

Sequences

- A *concentration* is a coherent sequence of courses completed by a student in a specific career area as identified in this planning guide. (A sequence may be comprised of two 36-week courses, one 36-week course and two 18-week courses, or four 18-week courses.)
- A career and technical education *completer* is a student who has met the requirements for a career and technical concentration and all requirements for high school graduation or an approved alternative education program. Students may take additional career and technical education courses that will enhance their career pathway goals.
- A *specialization* is a choice by a student to specialize in an occupational field by taking additional courses in a specific career area as appropriate to his/her career pathway.

Certifications/Licenses/Assessments Available

Completion of certain courses enables students to apply for industry certification, a state license, and/or a national certification. These credentials are beneficial (and sometimes essential) to students seeking employment in a career field or occupational specialty. In addition, students who obtain these credentials earn verified credits toward graduation.

- A *standard credit* is based on a minimum of 140 clock hours of instruction and successful completion of the requirements of the course.
- A *verified credit* is based on a standard credit plus a passing score on the end-of-course SOL test (or other test as described in the Standards of Accreditation 8 VAC 20-131-110). A standard credit may not be verified more than once.
- A *student-selected verified credit* is a course credit that includes a test (other than SOL) approved by the Virginia Board of Education.

For students to be eligible to receive student-selected verified credits, their teacher must be certified by the issuing organization relative to the industry certification or licensure. In the case of a CTE program area where there are potential multiple certifications, the teacher must be certified in at least one industry certification that is related to the course and/or course sequence. ***Exception:*** There is no teacher certification requirement for students to receive verified credits upon passing a selected NOCTI assessment related to their CTE program.

Verified credits entitle students to the Career and Technical Education diploma seal. Some verified credits earn students the Advanced Mathematics and Technology seal. Each year, the Virginia Board of Education approves the industry certifications that enable students to earn these seals.

The relationships among Board-approved examinations, verified credits, and diploma seals are explained in the Introduction and in Section 9. Additional information, including the description of each credential, how to earn it, and courses that may prepare students for examination, is contained in Section 10: Course Index and Descriptions of Certifications, Licenses, and Assessments.

Career Clusters

To help students investigate careers and design their courses of study to advance their career goals, the Office of Career and Technical Education Services in Virginia has adopted the nationally accepted structure of 16 career clusters, their accompanying career pathways, and their sample career specialties or occupations. To simplify federal reporting, the *Career and Technical Education Reporting System (CTERS) User's Manual* assigns a career cluster to each course. The cluster is also listed with each course that follows. Because some career clusters overlap (have similar occupations), teachers may have a choice of more than one cluster and should select the most appropriate one based on the student's career pathway for their federal report.

Additional information and samples of how to use career clusters to select CTE courses are included in Section 11: Instructional Planning with Career Clusters, Career Pathways, and Occupations.

Middle School Course(s)

Completer sequences and certifications do not apply to middle school courses. Report in the designated career cluster.

Health and Medical Sciences Exploratory 8370

Suggested Grade Level(s): 6, 7, 8 (36 weeks)

Students explore families of health careers and related occupations, participate in self-awareness activities, and receive an overview of the national health industry. Course content may also include the criteria for entering certain biomedical scientific careers and activities dealing with communication, problem solving, and critical thinking. **(Health Science career cluster)**

Course Offerings

Biomedical Technician 8347

Suggested Grade Level(s): 11 or 12 (36 weeks, 280 hours)

Prerequisite(s): Biology and/or chemistry

In Biomedical Technician, students gain foundational knowledge and skills appropriate for a variety of medical-related career paths in the field of biotechnology. They are introduced to diagnostic and therapeutic laboratory procedures that support bioscience research and practice, and investigate safety, quality assurance, and ethical concerns associated with the field of biomedical technology.

Recommended prerequisite(s): Biotechnology Foundations 8344

Concentration Sequences (a combination of the course above and those below, equivalent to two 36-week courses) Students wishing to complete a specialization may take additional courses appropriate to their career pathways.	Career Cluster(s) for federal reporting (choose one)	Available Credentials upon Completion of the Above Course
<ul style="list-style-type: none">Biotechnology Foundations 8344	Health Science	See Section 10 for a listing of applicable credentials (by course name or credential name).

Biotechnology Foundations 8344

Suggested Grade Level(s): 10, 11, 12 (36 weeks, 280 hours)

This course focuses on various techniques that are used to modify living organisms, or parts of organisms, to improve plants and animals, and the development of microorganisms for specific purposes. Student activities range from bioprocessing and genetic engineering to medicine, biomechanical systems, and the environment. Students gain insight and understanding about biotechnology career fields.

Concentration Sequences (a combination of the course above and those below, equivalent to two 36-week courses) Students wishing to complete a specialization may take additional courses appropriate to their career pathways.	Career Cluster(s) for federal reporting (choose one)	Available Credentials upon Completion of the Above Course
<ul style="list-style-type: none">Biomedical Technician 8347	Health Science	See Section 10 for a listing of applicable credentials (by course name or credential name).

Dental Assistant I 8328**Suggested Grade Level(s):** 11 (36 weeks, 280 hours)

Students are introduced to the careers in dentistry, including dentist (general and specialists), hygienist, dental assistant, dental laboratory technician, and dental receptionist. Students practice and learn about many of the skills utilized in these professions while attaining all the skills necessary to become a dental assistant. Study includes infection control and OSHA standards, anatomy and physiology, tooth morphology, oral histology, preventive dentistry, applied psychology, effective communication, office administration and management, use of dental software, operative dentistry techniques, and dental materials/laboratory skills.

Recommended prerequisite(s): Keyboarding 6150 or 6151 and Introduction to Health and Medical Sciences 8302

Concentration Sequences (a combination of the course above and those below, equivalent to two 36-week courses) Students wishing to complete a specialization may take additional courses appropriate to their career pathways.	Career Cluster(s) for federal reporting (choose one)	Available Credentials upon Completion of the Above Course
<ul style="list-style-type: none"> Dental Assistant II 8329 	Health Science	See Section 10 for a listing of applicable credentials (by course name or credential name).

Dental Assistant II 8329**Suggested Grade Level(s):** 12 (36 weeks, 280 hours)**Prerequisite(s):** Dental Assistant I 8328

Units of study include medical emergencies, coronal polishing, oral pathology, dental roentgenology, nutrition, schedule IV drugs and pharmacology, and advanced laboratory techniques. While attending classes for part of the week, students also have an opportunity to participate in internships in local private dental offices and public health dental facilities, where they participate in all phases of dental care delivery. At the end of the program, students are eligible to take the State Dental Board examination, which offers certification in Radiation Hygiene and Safety and in Schedule IV Drugs, qualifying those who pass to work as dental assistant, dental receptionist, patient educator, appointment controller, and dental office manager. After two years in the field, graduates of the program are eligible to take the national examination to become a certified Dental Assistant. Many graduates choose to continue their dental education at community colleges and universities.

Concentration Sequences (a combination of the course above and those below, equivalent to two 36-week courses) Students wishing to complete a specialization may take additional courses appropriate to their career pathways.	Career Cluster(s) for federal reporting (choose one)	Available Credentials upon Completion of the Above Course
<ul style="list-style-type: none"> Dental Assistant I 8328 	Health Science	See Section 10 for a listing of applicable credentials (by course name or credential name).

Emergency Medical Technician I 8333**Suggested Grade Level(s):** 10 or 11 (36 weeks, 280 hours)

Students focus on the role and responsibilities of emergency rescue workers, basic medical terminology, and health care skills that include first aid; cardiopulmonary resuscitation; aseptic technique; and related anatomy, physiology, and disease knowledge. Supervised work education is provided in a hospital or with rescue squads and is managed by the Health and Medical Sciences teacher.

Concentration Sequences (a combination of the course above and those below, equivalent to two 36-week courses) Students wishing to complete a specialization may take additional courses appropriate to their career pathways.	Career Cluster(s) for federal reporting (choose one)	Available Credentials upon Completion of the Above Course
<ul style="list-style-type: none"> Emergency Medical Technician II 8334 	Health Science	See Section 10 for a listing of applicable credentials (by course name or credential name).

Emergency Medical Technician II 8334**Suggested Grade Level(s):** 11 or 12 (36 weeks, 420 hours)**Prerequisite(s):** Emergency Medical Technician I 8333

Students become skilled in identifying and dealing with emergencies such as bleeding, fractures, airway obstruction, and cardiac arrest. Instruction emphasizes proper care and use of common emergency equipment and safe methods for lifting, moving, and transporting injured persons. Supervised on-the-job training and patient-care experiences are part of the instructional program. Program completers may take the EMT state certification examination administered by the Virginia Department of Health, Office of Emergency Medical Services.

Concentration Sequences (a combination of the course above and those below, equivalent to two 36-week courses) Students wishing to complete a specialization may take additional courses appropriate to their career pathways.	Career Cluster(s) for federal reporting (choose one)	Available Credentials upon Completion of the Above Course
<ul style="list-style-type: none"> Emergency Medical Technician I 8333 	Health Science	See Section 10 for a listing of applicable credentials (by course name or credential name).

Emergency Medical Technician III 8335**Suggested Grade Level(s):** 12 (36 weeks, 420 hours)**Prerequisite(s):** Emergency Medical Technician II 8334

This course will allow students to strengthen the skills acquired in the basic course and build on their certification level with additional certifications and mentored experience. Students will serve as liaisons with other public safety services (fire control, law enforcement, emergency management). Units of instruction include the following

- Review of EMT-Basic skills (medical, trauma, environmental)
- Pharmacology and drug dosage calculations
- Terrorist awareness and weapons of mass destruction
- Basic trauma life support certification
- Instructional theory—development of lesson plans
- Use of Audio/Visual public-speaking equipment
- Mentorship

Mentorship/field rotations: This course requires a clinical mentorship for development of proficiency in patient skills. An assigned mentor will evaluate field performance and document basic skill competency.

Concentration Sequences (a combination of the course above and those below, equivalent to two 36-week courses) Students wishing to complete a specialization may take additional courses appropriate to their career pathways.	Career Cluster(s) for federal reporting (choose one)	Available Credentials upon Completion of the Above Course
This course may be offered as a complement to an existing concentration sequence.	Health Science	See Section 10 for a listing of applicable credentials (by course name or credential name).

Entrepreneurship Education 9094**Suggested Grade Level(s):** 11 or 12 (36 weeks)

This course is designed for students who wish to concentrate on strategies for career development through ownership/management of their own businesses. Although individual skills are emphasized, the focus of the course is on development of a business plan, including the following: Determination of type of business enterprise, legal considerations, location selection, financing, steps in getting the enterprise started, marketing strategy, and interaction with successful entrepreneurs. The cooperative education method is available for this course. Students combine classroom instruction and supervised on-the-job training in an approved marketing position with continuing supervision throughout the school year.

Note: *Entrepreneurship Education, a Career Connections course, may be offered as a complement to an existing concentration sequence in any CTE program area. In some instances, where noted, it may be combined with specific courses to create concentration sequences.*

Exploring Entrepreneurship 9093**Suggested Grade Level(s):** 9, 10, 11, 12 (18 weeks)

Students explore qualities of individual enterprise, or the art of succeeding in a career. They develop skills needed to advance in an ever-changing work environment. Specifically, students develop competencies in decision making, long-range planning, effective communication, accountability, responsibility, and continuing education.

Note: Exploring Entrepreneurship, a Career Connections course, may be offered as a complement to an existing concentration sequence in any CTE program area. In some instances, where noted, it may be combined with specific courses to create concentration sequences.

Health and Medical Sciences Dual Enrollment with Postsecondary 8394

For information, contact the Health and Medical Sciences program, Virginia Department of Education. **(Health Science career cluster)**

Health and Medical Sciences Exploratory 8370 (Middle School)**Suggested Grade Level(s):** 6, 7, 8 (36 weeks)

Students explore families of health careers and related occupations, participate in self-awareness activities, and receive an overview of the national health industry. Course content may also include the criteria for entering certain biomedical scientific careers and activities dealing with communication, problem solving, and critical thinking. **(Health Science career cluster)**

Note: Completer sequences and certifications do not apply.

Health Assistant I 8331**Suggested Grade Level(s):** 11 or 12 (36 weeks, 280 hours)

Students explore careers in the allied health field by developing basic skills common to several assisting careers. They study body structure and function, principles of health, microbes and disease, and an overview of the national health and patient care system. Supervised work education or on-the-job training may begin as part of the course in hospitals, nursing homes, or public health agencies and is managed by the Health and Medical Sciences teacher.

Concentration Sequences (a combination of the course above and those below, equivalent to two 36-week courses) Students wishing to complete a specialization may take additional courses appropriate to their career pathways.	Career Cluster(s) for federal reporting (choose one)	Available Credentials upon Completion of the Above Course
<ul style="list-style-type: none"> Health Assistant II (Psychiatric Aide) 8332 	Health Science	See Section 10 for a listing of applicable credentials (by course name or credential name).

Health Assistant II (Psychiatric Aide) 8332**Suggested Grade Level(s):** 12 (36 weeks, 280 hours)**Prerequisite(s):** Health Assistant I 8331

Students experience classroom instruction and clinical practice in preparation for work in the field. Course content is based on validated competencies for specific work as a psychiatric aide. Students achieve necessary skills in assisting with therapeutic procedures and emergency measures, patient rehabilitation, and preparing the patient for examination. Students prepare to assist physicians and therapists in hospitals, nursing homes, clinics, and public health facilities.

Concentration Sequences (a combination of the course above and those below, equivalent to two 36-week courses) Students wishing to complete a specialization may take additional courses appropriate to their career pathways.	Career Cluster(s) for federal reporting (choose one)	Available Credentials upon Completion of the Above Course
<ul style="list-style-type: none"> Health Assistant I 8331 	Health Science	See Section 10 for a listing of applicable credentials (by course name or credential name).

Home Health Aide 8364

Suggested Grade Level(s): 11 or 12 (36 weeks)

Home Health Aide is designed as an “occupational mix” program that provides entry-level skills within the health-related field. It provides students with the knowledge, understanding, and basic skill training necessary for entering advanced Health and Medical Sciences programs or locating entry-level employment as a certified nurse’s aide/home health aide in a hospital, nursing home, home for adults, private home, or other health care setting. To ensure maximum skills and employment opportunities, the curriculum is designed to be taught by both Health and Medical Sciences and Family and Consumer Sciences teachers. Access to a clinical training facility is essential. Home Health Aide may be offered as a three-hour block senior intensified program or may, as a local option, be scheduled as a two-year, two-hour block at grades 11 and 12.

Recommended prerequisite(s): Introduction to Health and Medical Sciences 8302

Concentration Sequences (a combination of the course above and those below, equivalent to two 36-week courses) Students wishing to complete a specialization may take additional courses appropriate to their career pathways.	Career Cluster(s) for federal reporting (choose one)	Available Credentials upon Completion of the Above Course
<ul style="list-style-type: none">Family and Human Services I 8264	Health Science	See Section 10 for a listing of applicable credentials (by course name or credential name).

Introduction to Health and Medical Sciences 8302

Suggested Grade Level(s): 10, 11, 12 (36 weeks)

This course introduces the student to a variety of health care careers and develops basic skills required in all health and medical sciences. It is designed to help students understand the key elements of the U.S. health care system and to learn basic health care terminology, anatomy and physiology for each body system, pathologies, diagnostic and clinical procedures, therapeutic interventions, and the fundamentals of traumatic and medical emergency care. Throughout the course, instruction emphasizes safety, cleanliness, asepsis, professionalism, accountability, and efficiency within the health care environment. Students also begin gaining job-seeking skills for entry into the health and medical sciences field. In addition, instruction may include the basics of medical laboratory procedures, pharmacology fundamentals, biotechnology concepts, and communication skills essential for providing quality patient care.

Concentration Sequences (a combination of the course above and those below, equivalent to two 36-week courses) Students wishing to complete a specialization may take additional courses appropriate to their career pathways.	Career Cluster(s) for federal reporting (choose one)	Available Credentials upon Completion of the Above Course
<ul style="list-style-type: none">Medical Terminology 8383Nurse Aide I 8360Practical Nursing I 8357Practical Nursing II 8358	Health Science	See Section 10 for a listing of applicable credentials (by course name or credential name).

Introduction to Leadership 9091

Suggested Grade Level(s): 9 or 10 (18 weeks)

This course equips students with individual and group leadership skills. Course content includes leadership principles, officer training, parliamentary law, public speaking, effective communication, positive public relations skills, and techniques of organizing and conducting group meetings and activities. Students are encouraged to be active members of a community or school organization.

Note: Introduction to Leadership, a Career Connections course, may be offered as a complement to an existing concentration sequence in any CTE program area. In some instances, where noted, it may be combined with specific courses to create concentration sequences.

Leadership Development 9096**Suggested Grade Level(s):** 11 or 12 (18 weeks)**Leadership Development 9097****Suggested Grade Level(s):** 11 or 12 (36 weeks)

Students develop competencies in identifying individual aptitudes in relation to effective leadership skills, understanding organizational behavior, using effective communication in the workplace, handling human resources and organizational problems, supervising and training employees, resolving conflict, and planning for the future. Continuing education in leadership is emphasized as well as practical leadership experiences in cooperation with school and community leaders.

Note: Leadership Development, a Career Connections course, may be offered as a complement to an existing concentration sequence in any CTE program area. In some instances, where noted, it may be combined with specific courses to create concentration sequences.

Medical Assistant I 8345**Suggested Grade Level(s):** 11 or 12 (36 weeks, 280 hours)

Students develop basic skills and techniques to assist the physician and/or other medical professionals in patient examinations, basic emergency care, simple laboratory tests, and administrative duties and will gain foundation knowledge in basic anatomy and physiology, medical ethics, and legal responsibilities. Students also explore medical assisting career pathways. On-the-job clinical instruction and/or observation may occur in a health care facility and is coordinated by the Health and Medical Sciences teacher.

Recommended prerequisite(s): Introduction to Health and Medical Sciences 8302

Concentration Sequences (a combination of the course above and those below, equivalent to two 36-week courses) Students wishing to complete a specialization may take additional courses appropriate to their career pathways.	Career Cluster(s) for federal reporting (choose one)	Available Credentials upon Completion of the Above Course
<ul style="list-style-type: none"> Medical Assistant II 8346 	Health Science	See Section 10 for a listing of applicable credentials (by course name or credential name).

Medical Assistant II 8346**Suggested Grade Level(s):** 12 (36 weeks, 280 hours)**Prerequisite(s):** Medical Assistant I 8345

Students further develop medical-assisting skills and techniques learned in Medical Assistant I. They also learn management of patient records, cardiopulmonary resuscitation, care and use of equipment, collection and analysis of laboratory specimens, special diagnostic testing, diseases and disorders, basic knowledge of treatment and medication, and job preparedness skills. Advanced on-the-job clinical experience in a health care facility is a part of the course. Successful completion of the program may lead to employment in physicians' offices or clinics.

Concentration Sequences (a combination of the course above and those below, equivalent to two 36-week courses) Students wishing to complete a specialization may take additional courses appropriate to their career pathways.	Career Cluster(s) for federal reporting (choose one)	Available Credentials upon Completion of the Above Course
<ul style="list-style-type: none"> Medical Assistant I 8345 	Health Science	See Section 10 for a listing of applicable credentials (by course name or credential name).

Medical Terminology 8383

Suggested Grade Level(s): 10, 11, 12 (36 weeks)

Medical Terminology is designed to help students learn health care language and is presented in logical order, beginning with each body system's anatomy and physiology and progressing through pathology, diagnostic procedures, therapeutic interventions, and finally pharmacology. Concepts, terms, and abbreviations for a topic are also presented to the students.

Recommended prerequisite(s): Introduction to Health and Medical Sciences 8302

Concentration Sequences (a combination of the course above and those below, equivalent to two 36-week courses) Students wishing to complete a specialization may take additional courses appropriate to their career pathways.	Career Cluster(s) for federal reporting (choose one)	Available Credentials upon Completion of the Above Course
<ul style="list-style-type: none">• Introduction to Health and Medical Sciences 8302	Health Science	See Section 10 for a listing of applicable credentials (by course name or credential name).

Nurse Aide I 8360

Suggested Grade Level(s): 11 or 12 (36 weeks, 280 hours)

Nurse Aide I, offered as an occupational preparation course beginning at the 11th-grade level, emphasizes the study of nursing occupations as related to the health care system. Students study normal growth and development, simple body structure and function, and medical terminology and are introduced to microbes and disease. They receive elementary skill training in patient-nursing assistant relationships; taking and recording of vital signs; cardiopulmonary resuscitation; and bathing, feeding, dressing, and transporting of patients in hospitals and nursing homes. Limited on-the-job instruction in nursing homes and hospitals is part of the course. This course can be used as an introduction to practical nursing or to prepare the student for Nurse Aide II so that all competencies for a certified nursing assistant are met.

Recommended prerequisite(s): Introduction to Health and Medical Sciences 8302

Concentration Sequences (a combination of the course above and those below, equivalent to two 36-week courses) Students wishing to complete a specialization may take additional courses appropriate to their career pathways.	Career Cluster(s) for federal reporting (choose one)	Available Credentials upon Completion of the Above Course
<ul style="list-style-type: none">• Introduction to Health and Medical Sciences 8302• Nurse Aide II 8362	Health Science	See Section 10 for a listing of applicable credentials (by course name or credential name).

Nurse Aide II 8362

Suggested Grade Level(s): 12 (36 weeks, 280 hours)

Prerequisite(s): Nurse Aide I 8360

Nurse Aide II is an occupational preparation course, emphasizing advanced skill training in areas such as catheter care, range of motion, bowel and bladder training, care of the dying, selected procedures for maternal and infant care, and admission and discharge procedures. Students learn diseases and body systems as related to advanced clinical care of the acute medical-surgical patient, the chronically ill, and the elderly. On-the-job instruction in a licensed nursing home is part of the course. Upon completion of the nurse aide program, the student is eligible to take the nurse aide certification exam that leads to employment as a certified nurse aide in hospitals and nursing homes.

Concentration Sequences (a combination of the course above and those below, equivalent to two 36-week courses) Students wishing to complete a specialization may take additional courses appropriate to their career pathways.	Career Cluster(s) for federal reporting (choose one)	Available Credentials upon Completion of the Above Course
<ul style="list-style-type: none">• Nurse Aide I 8360	Health Science	See Section 10 for a listing of applicable credentials (by course name or credential name).

Pharmacy Technician I 8305

Suggested Grade Level(s): 11 or 12 (36 weeks, 280 hours)

This certificate program is designed to provide students with the basic skills and knowledge to begin work as a Pharmacy Technician. The coursework will fulfill the requirements of the Board of Pharmacy and prepare students to take either the state examination or the national examination administered by the Pharmacy Technician Certification Board. Trained, experienced pharmacy technicians who can demonstrate the right skills and knowledge should be able to pursue many exciting and respected career options or postsecondary study in the field of pharmacy.

Recommended prerequisite(s): Introduction to Health and Medical Sciences 8302

Concentration Sequences (a combination of the course above and those below, equivalent to two 36-week courses) Students wishing to complete a specialization may take additional courses appropriate to their career pathways.	Career Cluster(s) for federal reporting (choose one)	Available Credentials upon Completion of the Above Course
<ul style="list-style-type: none">Pharmacy Technician II 8306	Health Science	See Section 10 for a listing of applicable credentials (by course name or credential name).

Pharmacy Technician II 8306

Suggested Grade Level(s): 12 (36 weeks, 280 hours)

Prerequisite(s): Pharmacy Technician I 8305

This certificate program is designed to provide students with the basic skills and knowledge to begin work as a Pharmacy Technician. The coursework will fulfill the requirements of the Board of Pharmacy and prepare students to take either the state examination or the national examination administered by the Pharmacy Technician Certification Board. Trained, experienced pharmacy technicians who can demonstrate the right skills and knowledge should be able to pursue many exciting and respected career options or postsecondary study in the field of pharmacy.

Concentration Sequences (a combination of the course above and those below, equivalent to two 36-week courses) Students wishing to complete a specialization may take additional courses appropriate to their career pathways.	Career Cluster(s) for federal reporting (choose one)	Available Credentials upon Completion of the Above Course
<ul style="list-style-type: none">Pharmacy Technician I 8305	Health Science	See Section 10 for a listing of applicable credentials (by course name or credential name).

Physical/Occupational Therapy 8365

Suggested Grade Level(s): 11 or 12 (36 weeks, 280 hours)

The course is designed to provide an introduction to the professions of physical and occupational therapy. Students explore the principles and practices of therapists in the health care industry and participate in clinical observation under the direct supervision of a licensed physical and/or occupational therapist. Clinical skills in the areas of physical therapy and occupational therapy enable students to gain understanding of rehabilitative care, which is practiced throughout the continuum of care and across the life span of individuals. After successful completion of this course, students may choose to pursue employment as physical or occupational therapy technicians or may seek higher education for specific degrees/licensure in a variety of fields such as physical therapy, occupational therapy, speech therapy, sports medicine, athletic training, chiropractic medicine, biology, or exercise science.

Recommended prerequisite(s): Algebra and Biology

Concentration Sequences (a combination of the course above and those below, equivalent to two 36-week courses) Students wishing to complete a specialization may take additional courses appropriate to their career pathways.	Career Cluster(s) for federal reporting (choose one)	Available Credentials upon Completion of the Above Course
<ul style="list-style-type: none">Introduction to Health and Medical Sciences 8302	Health Science	See Section 10 for a listing of applicable credentials (by course name or credential name).

Practical Nursing I 8357**Suggested Grade Level(s):** 12 (18 weeks, 210 hours)

In the first semester, students learn nursing care of patients of all ages, in various stages of sickness or wellness, and with a variety of disease conditions. They focus on human anatomy, body function, communication, community health, fundamental nursing skills, nutrition, drug therapy, and elementary medical-surgical nursing.

Recommended prerequisite(s): Introduction to Health and Medical Sciences 8302

Concentration Sequences (a combination of the course above and those below, equivalent to two 36-week courses) Students wishing to complete a specialization may take additional courses appropriate to their career pathways.	Career Cluster(s) for federal reporting (choose one)	Available Credentials upon Completion of the Above Course
<ul style="list-style-type: none"> • Introduction to Health and Medical Sciences 8302 • Practical Nursing II 8358 • Practical Nursing III 8359 	Health Science	See Section 10 for a listing of applicable credentials (by course name or credential name).

Practical Nursing II 8358**Suggested Grade Level(s):** 12 (18 weeks, 210 hours)**Prerequisite(s):** Practical Nursing I 8357

In the second semester, instruction emphasizes introduction to pharmacology, normal life span (human growth and development), normal nutrition, nursing fundamentals, and nursing trends. Advanced emergency procedures and application of nursing procedures are demonstrated in a laboratory setting.

Concentration Sequences (a combination of the course above and those below, equivalent to two 36-week courses) Students wishing to complete a specialization may take additional courses appropriate to their career pathways.	Career Cluster(s) for federal reporting (choose one)	Available Credentials upon Completion of the Above Course
<ul style="list-style-type: none"> • Practical Nursing I 8357 	Health Science	See Section 10 for a listing of applicable credentials (by course name or credential name).

Practical Nursing III 8359**Suggested Grade Level(s):** 13 (36 weeks, 420 hours)**Prerequisite(s):** Practical Nursing II 8358

This high-school-extended course provides classroom instruction and clinical training in approved hospitals, licensed nursing homes, or home-care settings under the direction of a nurse educator. Instruction emphasizes administration of medicines, advanced and complex patient care, and practice with patients of all ages. Students learn advanced anatomy, physiology, and human behavior as related to health and disease, including mental illness. Upon successful completion of the total program, students qualify to take the practical nurse licensing examination.

Concentration Sequences (a combination of the course above and those below, equivalent to two 36-week courses) Students wishing to complete a specialization may take additional courses appropriate to their career pathways.	Career Cluster(s) for federal reporting (choose one)	Available Credentials upon Completion of the Above Course
This course may be offered as a complement to an existing concentration sequence.	Health Science	See Section 10 for a listing of applicable credentials (by course name or credential name).

Radiologic Technology 8375**Suggested Grade Level(s):** 12 (36 weeks)

Students acquire basic knowledge of the diagnostic imaging field, with a focus on the role and importance of radiologic technology in patient care. Instruction includes an introduction to the health care field, as well as basic knowledge of human anatomy, physiology, and disease processes; radiologic principles and equipment; radiologic safety; essentials of patient care; legal, ethical, and professional responsibilities. The course also emphasizes critical thinking skills and career opportunities in the field of radiologic technology.

Note: Mastery of the material in this course would provide students with a strong background should they wish to pursue certification in areas such as first aid, CPR, or AED.

Concentration Sequences (a combination of the course above and those below, equivalent to two 36-week courses) Students wishing to complete a specialization may take additional courses appropriate to their career pathways.	Career Cluster(s) for federal reporting (choose one)	Available Credentials upon Completion of the Above Course
This course may be offered as a complement to an existing concentration sequence.	Health Science	See Section 10 for a listing of applicable credentials (by course name or credential name).

Sports Medicine I 7660**Suggested Grade Level(s):** 11 or 12 (36 weeks, 280 hours)

This course of studies provides students with the basic concepts and skill set required for an entry-level position as a sports medicine assistant. It introduces students to topics such as injury prevention, nutrition, first aid/CPR/AED, exercise physiology, and biomechanics. Students study basic human anatomy and physiology, medical terminology, legal and ethical issues in sports medicine, and career preparation. Course competencies have been constructed so as not to go beyond the professional scope of aide/assistant level. Mastery of the material in this course would provide students with a strong background should they wish to pursue certification in areas such as first aid, CPR, AED, and/or personal trainer.

Recommended prerequisite(s): Introduction to Health and Medical Sciences 8302

Concentration Sequences (a combination of the course above and those below, equivalent to two 36-week courses) Students wishing to complete a specialization may take additional courses appropriate to their career pathways.	Career Cluster(s) for federal reporting (choose one)	Available Credentials upon Completion of the Above Course
<ul style="list-style-type: none"> Sports Medicine II 7662 	Health Science	See Section 10 for a listing of applicable credentials (by course name or credential name).

Sports Medicine II 7662**Suggested Grade Level(s):** 12 (36 weeks, 280 hours)**Prerequisite(s):** Sports Medicine I 7660

This course of studies provides students with the basic concepts and skill set required for an entry-level position as a sports medicine assistant. It introduces students to topics such as injury prevention, nutrition, first aid/CPR/AED, exercise physiology, and biomechanics. Students study basic human anatomy and physiology, medical terminology, legal and ethical issues in sports medicine, and career preparation. Course competencies have been constructed so as not to go beyond the professional scope of aide/assistant level. Mastery of the material in this course would provide students with a strong background should they wish to pursue certification in areas such as first aid, CPR, AED, and/or personal trainer.

Concentration Sequences (a combination of the course above and those below, equivalent to two 36-week courses) Students wishing to complete a specialization may take additional courses appropriate to their career pathways.	Career Cluster(s) for federal reporting (choose one)	Available Credentials upon Completion of the Above Course
<ul style="list-style-type: none"> Sports Medicine I 7660 	Health Science	See Section 10 for a listing of applicable credentials (by course name or credential name).

Surgical Technologist I 8351

Suggested Grade Level(s): 12 (36 weeks, 420 hours)

Students acquire knowledge and assisting-level skills to function in association with licensed nurses and surgeons/physicians, providing the best possible care of the surgical patient. Instruction emphasizes human anatomy, medical terminology, cleanliness, asepsis, safety, and efficiency in the operating room.

Recommended prerequisite(s): Introduction to Health and Medical Sciences 8302 or Nurse Aide I 8360

Concentration Sequences (a combination of the course above and those below, equivalent to two 36-week courses) Students wishing to complete a specialization may take additional courses appropriate to their career pathways.	Career Cluster(s) for federal reporting (choose one)	Available Credentials upon Completion of the Above Course
<ul style="list-style-type: none">Surgical Technologist II 8352	Health Science	See Section 10 for a listing of applicable credentials (by course name or credential name).

Surgical Technologist II 8352

Suggested Grade Level(s): 13 (36 weeks, 420 hours)

Prerequisite(s): Surgical Technologist I 8351

This high-school-extended course provides classroom instruction and clinical training in selected approved health care facilities under the direction of an approved educator. Students practice surgical procedures and aseptic techniques, including patient preparation and handling of materials and surgical instruments at the surgical field. Upon successful completion of the program, students qualify to take the national certification exam for surgical technologists.

Note: Although this course is classified as a 36-week course, circumstances usually dictate that it be accomplished within a four-month period on a full-time basis.

Concentration Sequences (a combination of the course above and those below, equivalent to two 36-week courses) Students wishing to complete a specialization may take additional courses appropriate to their career pathways.	Career Cluster(s) for federal reporting (choose one)	Available Credentials upon Completion of the Above Course
<ul style="list-style-type: none">Surgical Technologist I 8351	Health Science	See Section 10 for a listing of applicable credentials (by course name or credential name).

Veterinary Assistant I 8310

Suggested Grade Level(s): 10, 11, 12 (36 weeks, 420 hours)

Students learn animal science and the care of animals, including animal structure and function, principles of health, and microbes and disease. They develop basic skills and techniques of assisting the veterinarian in the following areas: receptionist duties; animal examinations; examining room and laboratory work; the handling, caring, and feeding of animals; first aid and surgery; and maintenance of equipment and facilities. On-the-job clinical instruction may occur in veterinary offices or animal clinics and is coordinated by the Health and Medical Sciences teacher.

Recommended prerequisite(s): Introduction to Health and Medical Sciences 8302

Concentration Sequences (a combination of the course above and those below, equivalent to two 36-week courses) Students wishing to complete a specialization may take additional courses appropriate to their career pathways.	Career Cluster(s) for federal reporting (choose one)	Available Credentials upon Completion of the Above Course
<ul style="list-style-type: none">Veterinary Assistant II 8311	<ul style="list-style-type: none">Agriculture, Food and Natural ResourcesHealth Science	See Section 10 for a listing of applicable credentials (by course name or credential name).

Veterinary Assistant II 8311**Suggested Grade Level(s):** 11 or 12 (36 weeks, 420 hours)**Prerequisite(s):** Veterinary Assistant I 8310

The student may incorporate a cooperative work experience that combines classroom instruction with two or three hours of school-released time for on-the-job training in a health care facility such as a veterinarian's office or clinic.

Concentration Sequences (a combination of the course above and those below, equivalent to two 36-week courses) Students wishing to complete a specialization may take additional courses appropriate to their career pathways.	Career Cluster(s) for federal reporting (choose one)	Available Credentials upon Completion of the Above Course
<ul style="list-style-type: none"> Veterinary Assistant I 8310 	<ul style="list-style-type: none"> Agriculture, Food and Natural Resources Health Science 	See Section 10 for a listing of applicable credentials (by course name or credential name).

Veterinary Assistant Level III 8312**Suggested Grade Level(s):** 12 (36 weeks, 420 hours)**Prerequisite(s):** Veterinary Assistant II 8311

The student will incorporate advanced classroom instruction with two or three hours of school-released time for on-the-job experience.

Concentration Sequences (a combination of the course above and those below, equivalent to two 36-week courses) Students wishing to complete a specialization may take additional courses appropriate to their career pathways.	Career Cluster(s) for federal reporting (choose one)	Available Credentials upon Completion of the Above Course
This course may be offered as a complement to an existing concentration sequence.	<ul style="list-style-type: none"> Agriculture, Food and Natural Resources Health Science 	See Section 10 for a listing of applicable credentials (by course name or credential name).

